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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/482,162	01/12/2000	Kikuo Kaise	SON-1720	6631

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EXAMINER

CHUNG, DAVID Y

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 12/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/482,162

Applicant(s)

KAISE ET AL.

Examiner

David Chung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4-6, 11-13, 15-17, 22 and 23 rejected under 35 U.S.C. 103(a) as being unpatentable over Bruzzone et al. (U.S. 6,166,797) in further view of Shigeta et al. (U.S. 6,266,121). Bruzzone et al. discloses diffusion barrier layers with microstructured spacing members. Note in figure 3B, the planarization layer 126 formed of the same material as projection spacers 136. Note the electrodes 128 formed in regions between the projection spacers. Bruzzone et al. does not disclose spacing members in the light-shielding layer.

However, providing a column spacer in the light-shielding region as opposed to the pixel region was well known and obvious to those of ordinary skill in the art. Placing a column spacer in the pixel region would block or interfere with the light passing through the pixel and cause the image quality to deteriorate. Furthermore, it was well known to place an optically isotropic spacer in the light-shielding region in order to use the spacer itself as the black matrix as taught by Shigeta et al. (U.S. 6,266,121). Shigeta et al. teaches that optically isotropic spacers allow the spacers to function as a

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black matrix so that the spacers shield light on regions between the electrodes other than the pixel regions, thereby improving contrast. See column 33, lines 23 – 32.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to form spacers in the light shielding area as taught by Shigeta et al. in order to improve contrast.

Claim 7 and 18 rejected under 35 U.S.C. 103(a) as being unpatentable over Wenz et al. (U.S. 5,268,782) in further view of Shigeta et al. (U.S. 6,266,121). Wenz et al. discloses a micro-ridged polymeric liquid crystal display substrate. See figure 2. Note the projections 56 and electrodes 62. Although not specifically shown, Wenz et al. suggests that the opposing substrate could be microstructured similar to the pixel substrate. This would create a device with first and second projections as shown in figure 2. Furthermore, Wenz et al. discloses a common electrode comprising a conductive film formed over the projections in figures 3 and 4. Note electrode 80 in figure 3 and electrode 110 in figure 4. This electrode was necessary in order to create an electric field across the liquid crystal layer, thereby modulating the light and forming a display image. See above regarding spacers formed in light-shielding regions.

Claim 3, 8-10, 14 and 19-21 rejected under 35 U.S.C. 103(a) as being unpatentable over Bruzzone et al. (U.S. 6,166,797) or Wenz et al. (U.S. 5,268,782) in further view of Shigeta et al. (U.S. 6,266,121) and Katagiri et al. (U.S. 4,763,995).

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Katagiri et al. suggests making the projections 404 of synthetic resin. See column 11, lines 8 – 21. It was well known and obvious to make projections of synthetic resin because synthetic resin was much easier to pattern with various known photolithography techniques. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to form column spacers from synthetic resin in order to minimize manufacturing costs. Katagiri et al. suggests making the insulating film 403 from an inorganic compound. See column 11, lines 29 – 35. It was well known and obvious that forming a planarizing film of organic material would have caused ion migration into the thin film transistors, causing them to degrade. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to form a planarizing film from an inorganic compound in order to minimize ion migration and prevent the thin film transistors from degrading.

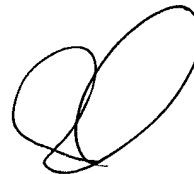
Response to Arguments

Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Chung whose telephone number is (703) 306-0155. The examiner can normally be reached on Monday-Friday from 8:30 am to 5:00 pm.



**JAMES DUDEK
PRIMARY EXAMINER**